

REMARKS

Claim 98 is amended. Claims 1-61 and 76-106 are pending in the application.

Claims 1-61 and 76-106 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over a combination of Cui (U.S. Patent Publication No. 2004/0000321), and Au (U.S. Patent Publication No. 2001/0010228); or over a combination of Cui and Au in further view of Rhieu (U.S. Patent No. 5,364,667). The Examiner is reminded by direction to MPEP § 2143 that a proper obviousness rejection has the following three requirements: 1) there must be some suggestion or motivation to modify or combine reference teachings; 2) there must be a reasonable expectation of success; and 3) the combined references must teach or suggest all of the claim limitations. Each of these three factors must be shown, the burden of which is upon the Examiner, in order to establish a *prima facie* case of obviousness. Claims 1-61 and 76-106 are allowable over the cited combinations of Cui, Au and Rhieu for at least the reasons that the references, individually or as combined, fail to disclose or suggest each and every element in any of those claims and fail to provide a reasonable expectation of success.

Each of independent claims 1, 24, 43, 76, 98, 99 and 105 recite depositing an elemental form of silicon-comprising material on a semiconductor substrate. The Examiner indicates reliance upon Cui as disclosing placing a substrate in a chamber for silicon deposition (present action at page 2) and indicates at page 5 of the present action that Cui is

not limited in scope to silicon dioxide formation. Referring to the Cui disclosure such discloses generally “depositing a layer of material over the substrate” (paragraph 5). The only indication of any specific material is silicon oxide (paragraphs 1 and 40). Further, the only enabling disclosure for layer formation and subsequent cleaning is for a silicon oxide material (paragraph 40). Accordingly, Cui does not disclose or enable any material other than silicon oxide. Even if the Examiner’s statement regarding Cui being not limited in scope to silicon dioxide formation were true, such is not the standard for patentability. The reference must teach or suggest what is recited in the claim. Nowhere does Cui teach or suggest the elemental form silicon-comprising material specifically recited in each of the independent claims of the present application.

As amended, independent claim 98 specifically recites that the elemental form silicon-comprising material deposited on the semiconductor substrate is selected from the group consisting of crystalline silicon, epitaxial silicon and epitaxial silicon containing Ge. The amendment to claim 98 is supported by the specification at, for example, paragraph 39. Cui not only fails to disclose or suggest the recited elemental form silicon-comprising material but additionally fails to disclose or suggest the specific forms recited in independent claim 98.

Neither of Au nor Rhieu disclose or suggest, or contribute toward suggesting, the depositing of an elemental form silicon-comprising material over a semiconductor substrate as recited in each of the independent

claims. Accordingly, as combined the Au, Rhieu and Cui combinations fail to disclose or suggest each and every element in any of the independent claims.

In addition to the above, each of claims 1, 24, 43, 99 and 105 recites generating a plasma effective to remove at least some of a deposit or a residue from a wall within the chamber after depositing the elemental form silicon-comprising material. The Cui disclosure of removal and cleaning after silicon oxide deposition does not provide a reasonable expectation of success for the recited removal of residue after depositing an elemental form silicon-comprising material on a semiconductor substrate. Nor do the Au or Rhieu disclosures contribute toward providing such a basis for a reasonable expectation of success. Accordingly, a *prima facie* case of obviousness has not been established relative to claims 1, 24, 43, 99 or 105.

Regarding independent claims 76 and 98, such recite feeding a cleaning gas to remove native oxides from a semiconductor substrate prior to the recited depositing an elemental form silicon-comprising material on the semiconductor substrate. Cui does not disclose or suggest the recited removal of native oxides prior to deposition of an elemental form silicon-comprising material and accordingly does not provide a reasonable expectation of achieving such removal. Neither Au nor Rhieu contribute toward providing a reasonable expectation of successfully removing native oxides prior to depositing the recited elemental form silicon-comprising

material over the semiconductive substrate. Accordingly, a *prima facie* case of obviousness has not been established relative to claims 76 and 98.

Since a *prima facie* case of obviousness has not been established relative to independent claims 1, 24, 43, 76, 98, 99 and 105 such claims are allowable over the cited art combinations. Dependent claims 2-23, 25-42, 44-61, 77-97, 100-104 and 106 are allowable for at least the reason that they depend from corresponding allowable base claims 1, 24, 43, 76, 99 and 105.

For the reasons discussed above claims 1-61 and 76-106 are allowable. Accordingly, applicant respectfully requests formal allowance of such pending claims in the Examiner's next action.

Respectfully submitted,

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By: Jennifer J Taylor
Jennifer J. Taylor, Ph.D.
Reg. No. 48,711